Programming for Historians | History 698 | Fall 2012

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Course Description

This course explores the *techne* (art/techniques) of digital history. It aspires to open new possibilities for historical research, especially in terms of asking and starting to answer fundamentally different kinds of questions. Historians typically develop important critical skills in parsing different kinds of sources, gaining familiarity and experience with possibilities and limitations of various kinds of sources. A key premise of the course is to learn to think about historical sources--regardless of kind--as data, and historical research can benefit from thinking in terms of data analysis. This course requires that you can bring a laptop to each class.

Key Skills/ Goals (see theory in action!)

- Advanced HTML 5 and CSS 3
- Various mark-up languages (XML, KML, RDF, TEI)
- Various web programming languages (PHP, Javascript)
- Databases in theory and practice
- Special practice in modifying Wordpress and Omeka sites
- Various methods of web scraping
- Using APIs
- Ability to create maps programmatically
- Various text mining techniques and tools
- Command line work with Perl and python

Course Expectations

- A serious effort for all programming assignments, and continued progress on course projects
- Perseverance and tolerance for frustration with technical difficulty. Must be able to have fun and learn while accomplishing nothing.
- Do not suffer in silence for too long. You will be frustrated and confused in this course, and that's necessary. But there is a point at which it is no longer productive, and then you should ask for help.
- Presentation on 2 (probably) course topics. You (and a partner, if you'd like to do it that way) will provide an introduction and key skills on a topic of your choice. Presentations will go for 60 minutes (plan for 45 minutes of talking, plus time for interruptions).

Course Project

The goal of the course project is to show that you have developed and applied some technical skills relevant to digital history to your research/career(s). The hope is that you'll be able to gradually improve an existing project you've started or completed, or start a new project (or a component of a larger project) that you intend further develop at a later time.

Grading

Your course grade will be largely determined by effort--both on the quality of your presentations and the extent to which you can show tangible progress on your project throughout the semester. Everyone comes into the course with different skills and backgrounds, so there is no expectation that everyone can do the same things at the end, but that you've moved significantly beyond where you were when you started. However, you do need to be able to actually complete (to a high degree) the assignments and final project to show that you are putting in the effort to acquire the target skills.

- Completing assignments: 15%
- Topic tutorials: 15%
- Active and intelligent participation in class discussions / labs: 40%
- Final project: 20%
- Presentation of Final Project: 10%

VERY ROUGH, DEFAULT SCHEDULE OF ACTIVITIES

Assignments are meant to be completed for the day they are listed; One week left unaccounted for, which will be filled according to student interests.

Introduction to the Course and Internet mechanics

- Discussion: Historical Data Analysis
- Discussion: Final Projects and tutorial assignments
- Lab: Set up development environments

Advanced HTML and CSS

- Explore/review HTML and CSS tutorials
- Create a website with Zen Garden template
- Lab: Troubleshooting and problem solving

Javascript

- Redesign and code a digital history page that you think should be better
- Read and complete javascript tutorial
- Lab: Using Javascript and JQuery to add functionality to webpages

Databases

- Create a web page (with any necessary) functionality to show off your data and results of explorations of it during the course
- Read Google, Introduction to Databases.
- Discussion: Designing and constructing databases for historical research--best practices and common pitfalls

Introduction to PHP

- Read PHP tutorial
- Lab: Work through various PHP webpages and functionality

CMS Customization: Wordpress and Omeka

- Read through tutorials and codices
- Lab: Create custom pages that extend site functionality

PHP scripting and data manipulation

- Find data and reformat to a CSV file with simple scripts
- Lab: Harnessing the power of command line scripting

Web scraping

- Automate process of getting data from sets of webpages
- Lab: Web scraping

Introduction to APIs

- read through API tutorial
- Lab: using APIs for geolocation

Mapping and GIS

- Find relevant data, use scripts to gather and geolocate it
- Lab: Creating your own Google Map with historical data

Life on the Command Line

- Manipulating texts and files with bash, vi, and especially grep
- Lab: gather some texts and explore

Power of Simple Scripting

- perl, python, and what you can do with them. Scan tutorials at programming historian
- Lab: automate boring normalization tasks

Visualizing

- Visualization tools overview: problems and possibilities
- Lab: play with some tools (ManyEyes, Google Chart API, D3, etc)

Presentations & Conclusions

Presentations of your final projects should be around 15 minutes. Your main goal is to show that you are applying techniques from the course for your own research. But it's also an opportunity to ask for advice!